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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/900,068	07/06/2001	Gerald E. Markley	GJH-0102	8590

7590 02/23/2004

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EXAMINER	
GRIFFIN, WALTER DEAN	
ART UNIT	PAPER NUMBER
1764	

DATE MAILED: 02/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/900,068	MARKLEY ET AL.	
	Examiner	Art Unit	
	Walter D. Griffin	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9,11-19 and 21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9,11-19 and 21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 3, 2004 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-9 and 12-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ushio et al. (US 5,888,379) in view of Trachte et al. (US 5,198,099).

The Ushio reference discloses a process for removing sulfur and nitrogen from a hydrocarbon oil. The process comprises passing the oil to a first stage hydrotreatment step that can operate in cocurrent or countercurrent flow of oil and gas. This first step results in an oil with a decreased sulfur and nitrogen concentration as compared to the feed. The minimum amounts of sulfur and nitrogen in the oil after the first step are 0.01 mass percent. The catalyst used in the first step preferably contains a combination of 2 metals chosen from cobalt, molybdenum, and nickel. Conditions in the first step include a temperature with a lower limit of 340°C and a pressure of at least 8 MPa. The effluent from the first reaction zone is then passed to a second hydrotreatment step. This second hydrotreatment can also operate in cocurrent or countercurrent flow of oil and gas. This second step results in an oil, which is a liquid product, with a decreased sulfur and nitrogen concentration as compared to the effluent from the first step. Conditions in the second step include a temperature with a lower limit of 200°C and a pressure of at least 1 MPa. The catalyst used in the second step can contain Group VI and VIII metals. See column 3, line 63 through column 4, line 50; column 5, lines 37-65; column 6, lines 6-29; column 7, lines 5-11 and 56-67; column 8, lines 1-15 and 52-61; and column 9, lines 35-52.

The Ushio reference does not disclose the claimed feeds, does not disclose the metal concentrations in the catalysts, and does not explicitly disclose the combinations of catalytic

metals. The Ushio reference also does not disclose an additional reaction zone following the second reaction zone.

The Trachte reference discloses the hydrocracking of a petroleum distillate that has been previously hydrotreated in a two-stage hydrotreatment process. See col. 1, lines 45-66.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Ushio by utilizing the claimed feeds because the claimed feeds would have similar chemical and physical properties as the disclosed feeds and therefore would be expected to be effectively treated in the Ushio process.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilized the claimed metal combinations and amounts in the catalysts of Ushio because these metals fall within the general class of metals disclosed by Ushio and therefore would be expected to be effective in the process. Additionally, any amount of metals including the claimed amounts that would be catalytically effective would be used by one having ordinary skill in the art.

It also would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process of Ushio by including a hydrocracking step following the second hydrotreating zone as suggested by Trachte because the resulting product will be substantially free of heteroatoms and have other desired properties and because the hydrocracking zone will have long term activity maintenance since the feed to the hydrocracking zone will be sweet.

Claims 11 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ushio et al. (US 5,888,379) in view Trachte et al. (US 5,198,099) as applied to claims 1 and 12 above, and further in view of Scott (US 3,425,810).

The previously discussed references do not disclose the use of a reaction stage that contains a vapor passageway.

The Scott reference discloses a hydrotreating apparatus that contains a vapor passageway through or around at least a portion of a catalyst bed. See Figure 1 and column 5, lines 5-12.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the teachings of the previously discussed references by utilizing an apparatus that contains a vapor passageway through or around at least a portion of a catalyst bed as suggested by Scott because disruption and attrition of the catalyst is reduced and because liquid entrainment in the vapor would be eliminated.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter D. Griffin whose telephone number is (571) 272-1447. The examiner can normally be reached on Monday-Friday 6:30 to 4:00 with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Walter D. Griffin
Primary Examiner
Art Unit 1764

WG
February 17, 2004